Identification of Asian timbers in pulp, paper and fiber boards

Dr. Immo Heinz - Thünen-Institute of Wood Research
Atlas of vessel elements

Introduction
- Practical background
- Preparation
- Anatomical features
European Timber Regulation (EUTR)

Implemented in March 2013

Market participants’ system of due diligence

- Risk assessment tool
- Environment and consumer protection
- Importer must declare species and origin
Macroscopic evaluation is not possible
Wooden tissue is dissolved
Mostly a mixture of different timbers
DNA destroyed and/or washed out
References

- North America and Europe
  (available)
- Southeast Asia
- Temperate Asia
  (needed)
Production of references

- Maceration (CH₃COOH / H₂O₂)
- Preparation
- Microscopy
Wood identification of solid wood

- Three anatomical sections
- 80 - 100 microscopic features
- The natural grown wooden tissue
Wood identification of fiber materials

- Maceration, staining of cells
- Light microscopy
- 12 microscopic features
- Matching with references
Cell types and their value

*Swintonia* spp.
Features of vessel elements

- Dimensions (length / width)
- Perforation plates
- Intervessel pits (size / arrangements)
- Vessel-ray pits (APS or VAS)
- Helical thickenings
- Tyloses
Monocots

- No vessel-ray pitting
- Axial continued pit fields and regions without pits
Main features of vessel elements

Hardwoods with simple perforation plates

**APS:** All Pits Similar (in size and shape)
Main features of vessel elements

Hardwoods with simple perforation plates

VAS: Vessel-ray pits Apparently Simple
Main features of vessel elements

Hardwoods with scalariform perforation plates
Summary

• References for 38 Asian timbers are established

• Determination of the wood origin is not possible

• All selected timbers can be clearly identified (evaluated with blind-tests)
References for the identification of vessel elements


**Atlas of Vessel Elements**
Identification of Asian Timbers

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Thank you!